

MUREP Small Business Technology Transfer (M-STTR) Planning Grants

Title: Climate Enhancing Resource Utilization Through Ultra-low-temperature, Electrolytic Carbon Dioxide Valorization on Mars

Institution: University of Texas, San Antonio

City/State: San Antonio, TX

PI: Shrihari Sankarasubramanian, Ph.D.

FY: 2022

SUMMARY:

Over the course of this 4-month planning grant, UTSA, one of *ca* 20 institutions nationwide that is both a Hispanic Serving Institution (HSI) and a Carnegie R-1 university, will establish a partnership with Faraday Technology Inc. We will gain an understanding of mutual capabilities and interests in NASA-relevant areas, explore collaborative research, technology transfer, engagement in responding to future SBIR/STTR opportunities and carry out preliminary examination of the catalyst and separator components of the low-temperature electrolyzer. Furthermore, undergraduate, and graduate students in the UTSA PI's lab will be actively involved in this project and gain an understanding of (and possibly excitement for) electrochemical engineering in NASA-relevant areas. The students will thus **(i)** contribute to NASA's work in exploration and discovery; **(ii)** engage in authentic NASA-relevant STEM learning experiences and **(iii)** connect and become invested in NASA's mission and work. They will connect their classroom and laboratory experiences with the industrial practice of STEM by visiting Faraday Technology facilities and presenting the results of their work there. We have also received significant interest in the use of this family of technologies for terrestrial applications and anticipate developing partnerships for scale-up and demonstrations in the future.